

CLAIMS

1. A heat accumulator, for vehicle use, attached to a vehicle and having a double tank structure composed of an outer tank and an inner tank, a space formed  
5 between the outer tank and the inner tank being maintained as a vacuum, the outer tank and the inner tank each having an opening on a bottom face, the opening of the outer tank and that of the inner tank being joined to each other at the entire peripheries of the openings,  
10 preventing means for preventing fatigue failure from starting at said joining portion being provided at a portion extending from said opening to at least a side of said outer tank.

2. A heat accumulator, for vehicle use, according to claim 1, wherein said preventing means for preventing  
15 fatigue failure from starting at said joining portion being provided at said portion extending from said opening to at least a side of said outer tank.

3. A heat accumulator, for vehicle use, according to claim 2, wherein the portion of low rigidity is an  
20 annular protruding portion protruding toward the inner tank so that the annular protruding portion can surround the joining portion.

4. A heat accumulator, for vehicle use, according to claim 2, wherein the portion of low rigidity is an  
25 annular bellows portion extending so that the annular bellows portion can surround the joining portion.

5. A heat accumulator, for vehicle use, according to claim 2, wherein the portion of low rigidity is an  
30 annular thin portion extending so that the annular thin portion can surround the joining portion.

6. A heat accumulator, for vehicle use, according to claim 1, wherein a heat accumulator use fluid passage  
35 is provided in said joining portion for allowing a heat accumulator use fluid to flow in and out from said inner tank, and a plug for sealing around said heat accumulator use fluid passage is inserted into said opening of said

inner tank,

said side of said outer tank is attached to a vehicle body of said vehicle via a bracket connected with said side,

5                   said preventing means for preventing fatigue failure from starting at said joining portion, provided at said portion extending from said opening to at least a side of said outer tank, is comprised of a connecting member connecting said plug and the outermost  
10 circumferential portion of the bottom face of the outer tank.

7. A heat accumulator, for vehicle use, according to claim 1, wherein a heat accumulator use fluid passage is provided in said joining portion for allowing a heat  
15 accumulator use fluid to flow in and out from said inner tank, and a plug for sealing around said heat accumulator use fluid passage is inserted into said opening of said inner tank,

said side of said outer tank is attached to a vehicle body of said vehicle via a bracket connected with said side,

said preventing means for preventing fatigue failure from starting at said joining portion, provided at said portion extending from said opening to  
25 at least a side of said outer tank, is comprised of a connecting member connecting said plug and a side of said outer tank.

8. A heat accumulator, for vehicle use, according to claim 1, wherein a heat accumulator use fluid passage is provided in said joining portion for allowing a heat  
30 accumulator use fluid to flow in and out from said inner tank, and a plug for sealing around said heat accumulator use fluid passage is inserted into said opening of said inner tank,

35                   said side of said outer tank is attached to a vehicle body of said vehicle via a bracket connected with said side,

said preventing means for preventing fatigue failure from starting at said joining portion, provided at said portion extending from said opening to at least a side of said outer tank, is comprised of a connecting member connecting said plug and said bracket.

9. A heat accumulator, for vehicle use, according to claim 1, wherein a heat accumulator use fluid passage is provided in said joining portion for allowing a heat accumulator use fluid to flow in and out from said inner tank, and a plug for sealing around said heat accumulator use fluid passage is inserted into said opening of said inner tank,

said side of said outer tank is attached to a vehicle body of said vehicle via a bracket connected with said side,

said preventing means for preventing fatigue failure from starting at said joining portion, provided at said portion extending from said opening to at least a side of said outer tank, is provided on annular portions on the bottom faces of the outer and inner tank and comprised of portion being inclined upward from the inner circumferential edge to the outer circumferential edge, the inclination angle of the portion, with respect to the horizon, being substantially set in a range from 10° to 50°.

10. A heat accumulator for vehicle use according to claim 9, wherein the inclination angle of the annular portion of the outer tank is substantially set in a range from 20° to 30°.

11. A heat accumulator for vehicle use according to claim 10, wherein the inclination angle of the annular portion of the outer tank is substantially set at 25°.

12. A heat accumulator for vehicle use according to claim 9, wherein the inclination angle of the annular portion of the inner tank is substantially set in a range from 20° to 30°.

13. A heat accumulator for vehicle use according to

claim 12, wherein the inclination angle of the annular portion of the inner tank is substantially set at 25°.

14. A heat accumulator for vehicle use according to claim 9, wherein at least one portion of each of the annular portions of the outer and the inner tank has a conical portion.

15. A heat accumulator, for vehicle use, according to claim 9, wherein a cross section of the annular portion of each of the outer and the inner tank is curved.

16. A heat accumulator for vehicle use according to claim 15, wherein an inclination angle of each of the outer and the inner tank is gradually increased from the inner circumferential edge of the annular portion to the outer circumferential edge.

17. A heat accumulator, for vehicle use, according to claim 9, wherein an inclination angle of the inner tank is substantially larger than an inclination angle of the outer tank by a predetermined angle smaller than 30°.

18. A heat accumulator for vehicle use according to claim 17, wherein the predetermined angle is substantially 5°.

19. A heat accumulator, for vehicle use, according to claim 1, wherein a heat accumulator use fluid passage is provided in said joining portion for allowing a heat accumulator use fluid to flow in and out from said inner tank, and a plug for sealing around said heat accumulator use fluid passage is inserted into said opening of said inner tank,

said side of said outer tank is attached to a vehicle body of said vehicle via a bracket connected with said side,

said portion extending from said opening to at least a side of said outer tank at which said preventing means for preventing fatigue failure from starting at said joining portion is provided, is a path through which vibration of said vehicle is transmitted to

said joining portion.